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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,074	03/30/2004	Koji Shirakawa	Q80838	3020
23373	7590	08/23/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			LEE, SIN J	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,074

Applicant(s)

SHIRAKAWA ET AL.

Examiner

Sin J. Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 102/103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

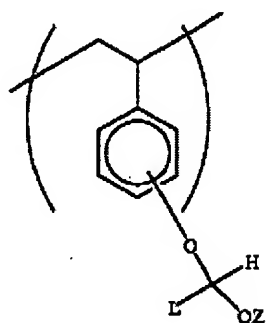
3. Claims 1-10, 13 and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nishiyama et al (US 6,537,718 B2).

Nishiyama teaches (see claims 1 and 3) a positive photoresist composition containing a photoacid generator and a resin, which is described in his claim 3 which is shown below.

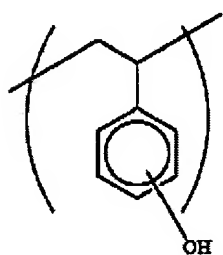
3. The positive photoresist composition for exposure to a far ultraviolet ray as claimed in claim 1, wherein the resin (B) contains a repeating unit represented by formula (IV) shown below and a repeating unit represented by formula (V) shown below:

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(IV)

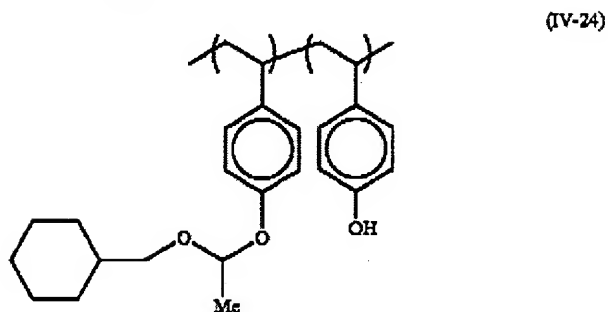
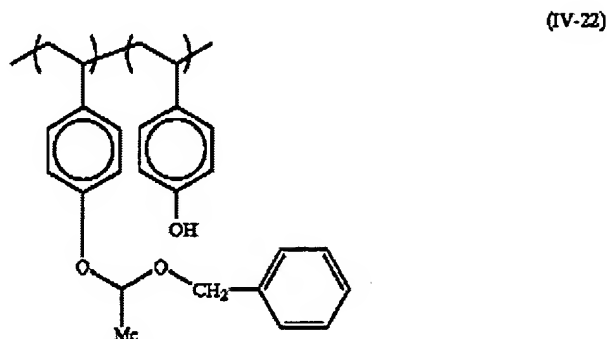


(V)



wherein L represents a hydrogen atom, a straight-chain, branched chain or cyclic alkyl group which may be substituted or an aralkyl group which may be substituted; Z represents a straight-chain, branched chain or cyclic alkyl group which may be substituted or an aralkyl group which may be substituted; or Z and L may be combined with each other to form a 5-membered or 6-membered ring.

Among the examples for such resin (B), Nishiyama discloses (see col.29) following two:



Both of these resins include preset acid-decomposable group (X) of claim 1. Since those two resins are clearly disclosed in the reference, it is the Examiner's position that one skilled in the art would immediately envisage using either of those resins as Nishiyama's resin (B). Nishiyama teaches (col.38, lines 5-12) that the wt. average Mw of his resin is preferably in a range of 2,000 to 300,000. Since the data point of 2,000 is clearly disclosed as the lower limit of the taught range (i.e., the data point of 2,000 is described with *sufficient specificity*) one skilled in the art would immediately envisage Nishiyama's resin (B) to have the Mw of 2,000, and thus, the prior art teaches present limitation as to the wt average molecular weight being not more than 5,000. As stated in In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), "the disclosure in the prior art of any value within a claimed range is an anticipation of that range." Nishiyama also teaches (col.24, lines 61-65) that the molar ratio of the repeating unit of the formula

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(IV) to the repeating unit of the formula (V) present in his resin is *more preferably* from 10/90 to 40/60, and thus, the prior art teaches present limitation as to the amount of the acid decomposable group being not more than 40% (the range of 10-40% as taught by Nishiyama meets the present limitation of "not more than 40%"). Nishiyama teaches the use of a organic basic compound in his composition (see col.39, lines 50-67) as well as the use of a surfactant (see col.39, lines 1-5). Nishiyama also teaches the solvent combination of propylene glycol monomethyl ether acetate and propylene glycol monomethyl ether in his claim 1. Nishiyama coats his photoresist composition onto a substrate, exposes the coated substrate to the exposure light such as X ray or an electron beam and then develops the exposed photoresist film to obtain a resist pattern (see col.42, lines 53-64). Therefore, Nishiyama teaches present inventions of claims 1-10, 13 and 14.

Alternatively, it would have been obvious to one skilled in the art to choose resin (IV-22) and (IV-24) as Nishiyama's resin (B) with a reasonable expectation of obtaining a positive photoresist composition, which is improved in line edge roughness and micro grain and is excellent in uniformity of coating on a substrate. Also, since Nishiyama's range (2,000 to 300,000) for the wt. average Mw of his resin overlaps with present range of "not more than 5,000, the prior art's range would have made present range prima facie obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a prima facie case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Nishiyama also teaches (col.24, lines 61-65) that the molar ratio of the repeating unit of the formula (IV) to the repeating unit of the formula

(V) present in his resin is *more preferably* from **10/90** to **40/60**, and thus, the prior art's teaching meets present limitation as to the amount of the acid decomposable group being not more than 40%. Thus, Nishiyama's teaching renders obvious present inventions of claims 1-10, 13 and 14.

Allowable Subject Matter

4. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Nishiyama does not teach or suggest present Z group of claim 11 which has R5 substituent.

Response to Arguments

5. Applicants argue that Nishiyama does not anticipate present limitation in claim 1 that the resin (a) has a weight average molecular weight of not more than 5,000 citing Atofina v. Great Lakes Chemical Corp., 78 USPQ 2d 1417 (Fed. Cir. March 23, 2006), which stated that the disclosure of a range is no more a disclosure of the end points of the range than it is of each of the intermediate points." However, MPEP 2131.03 states that prior art which teaches a range within, overlapping, or *touching* the claimed range anticipates if the prior art range discloses the claimed range with "sufficient specificity." In Atlas Powder v. Ireco., 51 USPQ2d 1943, the CAFC affirmed the decision of the district Court to invalidate the Clay patent on the basis that two earlier patents to Egly and Butterworth anticipated the composition because they contained overlapping ranges of the individual ingredients of the composition save for mention of "sufficient aeration" (see below for the comparison of Clay, Egly and Butterworth):

Comparison of clay, Egly and Butterworth:

	Clay	Egly	Butterworth
<u>Composition contents:</u>			
Water-in-oil emulsion	10-40%	20-67%	30-50%
Solid ammonium Nitrate	60-90%	33-80%	50-70%
<u>Emulsion contents:</u>			
Ammonium Nitrate	70-90%	50-70%	65-85%
Water	3-15%	15-35%	7-27%
Fuel Oil	2-15%	5-20%	2-27%
Emulsifier	0.1-5%	1-5%	0.5-15%

Also, in Ex parte Lee, 31 USPQ2d 1105 (the issue was to decide whether an end point constitutes a valid data point and whether the reference anticipates the claim), the plurality decision saw “no reason for treating the specific value disclosed in the reference as *the lower limit of a range* any differently from any other value disclosed in a reference: even though appellant argued that picking the end point involved picking and choosing. It is the Examiner’s position that neither Atlas Powder v. Ireco nor Ex parte Lee was overturned by the decision of Atofina v. Great Lakes Chemical.

With respect to obviousness rejection, Shirakawa’s Declaration was carefully considered but was found to be unpersuasive for the following reasons: MPEP 716.02(b) states that the burden is on applicant to establish that results are unexpected and *significant*. The evidence relied upon should establish “that the differences in results are in fact unexpected and unobvious and of *both statistical and practical significance*.” Ex parte Gelles, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992).

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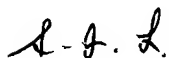
Even though there seem to be *some* improvements shown in Examples 1 and 2 (in terms of sensitivity, resolution, pattern profile and In vacuo PEP Property) when compared to the Comparative Example 1, it is the Examiner's position that applicants have not established that those improvements are "significant".

For those reasons stated above, present rejections over Nishiyama still stands.

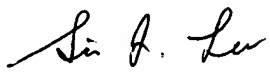
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee
August 21, 2006


SIN LEE
PRIMARY EXAMINER